
OUTCOMES OF THE 26th SESSION OF THE SCIENTIFIC COMMITTEE

PREPARED BY: IOTC SECRETARIAT, 1 FEBRUARY 2024

PURPOSE

To inform participants at the 7th Technical Committee on Management Procedure (TCMP07) of the recommendations arising from the 26th Session of the Scientific Committee (SC26) held from the 4th to 8th December 2023, specifically relating to the work of the TCMP.

BACKGROUND

At the 26th Session of the SC, the SC noted and considered the recommendations made by the TCMP06 and WPM14 in 2023 that included updates on the MSE process for various IOTC species. Based on these recommendations, the SC26 made a set of requests (see extracts from the SC26 Report below). In addition, the SC26 reviewed and endorsed a Program of Work for the WPM, as detailed in [Appendix A](#) as well as a revised Program of work for the development of MPs for key IOTC species ([Appendix B](#)).

DISCUSSION

The following extracts from the SC26 Report (IOTC–2023–SC26–R) are provided here for the consideration and action of the TCMP07:

Report of the 14th Session of the Working Party on Methods (WPM14)

*(Para. 115) The SC **NOTED** the report of the 14th Session of the Working Party on Methods (IOTC–2023–WPM14–R), including the consolidated list of recommendations provided as an appendix to the report. The meeting was attended by 39 participants (cf. 60 in 2023). Three participants received funding through the MPF funding.*

*(Para. 116) The SC **NOTED** that the WPM has reviewed and discussed a wide range of issues including MSE progress for IOTC species, multi-species MSE, exceptional circumstances considerations for bigeye tuna MSE, joint CPUE standardisations, and close kin mark recapture design study for yellowfin tuna.*

7.5.1 Update on TCMP06

*(Para. 117) The SC **NOTED** document IOTC-2023-TCMP06-R on the Report of the 6th session of the TCMP held in May 2023. The SC **NOTED** that the WPM had taken into consideration the recommendations and discussions held at that meeting.*

*(Para. 118) The SC **NOTED** the following requests made on the skipjack MSE: (1) Investigating the model-based MP; (2) revising the tuning window and revisiting the shape of HCR function, and (3) Increasing options for “maximum TAC change” to include a symmetric 15% or 25% (both upward/downward changes) and asymmetric 15% upward and 10% downward, or 25% upward and 15% downward change.*

*(Para. 119) The SC also **NOTED** the requests made on the swordfish MSE: (1) Investigate the model-based MP with MSY-related reference point parameters (in addition to the current depletion reference points); (2) investigating TAC constrains including a symmetric 15% or 10%, and asymmetric 15% upward and 10% downward.*

*(Para. 120) The SC **NOTED** the above requests has been the focus of MSE work led by the modelers. The SC further **NOTED** that the SKJ and SWO MSE is currently thought to be in a relatively advanced stage of development in comparison to other species.*

7.5.2 Management Strategy Evaluation Progress

*(Para. 121) The SC **NOTED** the good progress made in Management Strategy Evaluations exercises for IOTC species in 2023, and the useful discussions of MSE work at the MSE Task Force meeting (a technical expert group of the WPM) and the TCMP meeting in 2023.*

7.5.3 Albacore MSE

(Para. 122) The SC **NOTED** that the challenges encountered when conditioning OMs based on the albacore stock assessment have been resolved when using Approximate Bayesian Computation (ABC) to condition the albacore OMs. ABC can offer a variety of solutions to potential problems that may arise during conditioning (e.g., cannot account for recent observed catches). The SC endorsed this OM procedure and agreed that a final set of OMs be constructed for the MP evaluation.

7.5.4 Skipjack tuna MSE

(Para. 123) The SC **NOTED** the SKJ MSE focused on addressing the requests made by TCMP06. The SC **NOTED** that the biomass dynamic model (BDM) did not work. The SC further **NOTED** that the TAC changes tested under the MP is shown to be much less than the TAC constraint applied. The SC agreed that these TAC changes scenarios should still be completed.

(Para. 124) The SC **NOTED** a few requests made by the WPM15 including reconditioning the OM with the new assessments, and further robustness tests to evaluate autocorrelation in the recruitment deviates comparable to observed recruitment. The SC **REQUESTED** the results to be presented at the TCMP-07 in Feb 2024.

7.5.5 Yellowfin tuna MSE

(Para. 125) The SC **NOTED** that there has been no further progress on the OM development of yellowfin tuna, pending the results of the new yellowfin stock assessment scheduled in 2024 following the external review of model that took place in February in 2023.

7.5.6 Swordfish MSE

(Para. 126) The SC **NOTED** that although the two types of MP performed similarly, the data-based MP produced wider inter-annual variability, comparatively higher catches, and increased uncertainty regarding future catches. Additionally, because it is directly linked to the CPUE index, the data-based MP is more responsive. It was also noted that in both robustness trials, the data-based MP outperforms the model-based MP.

7.5.7 General MSE issues

(Para. 127) The SC **RECALLED** that TCMP and Commission requested to improve the communication of the MSE results by reducing the amount of technical content and for the creation of a small working group to discuss and agree on ways to improve communication between scientists and managers. The SC **NOTED** that the small group has now be convened with the first meeting expected to take place end of the year or early next year.

(Para. 128) The SC **NOTED** that a virtual TCMP is planned for February 2024, with the main goal of reviewing the MSE work for skipjack tuna and swordfish. It is anticipated that the WPM(MSE) task force meeting in April will address any requests or recommendations made during that meeting. If the MP can be finalized it then can be presented to the TCMP in May to be ready for consideration by the Commission.

(Para. 129) The SC **NOTED** that there is a need to ensure that any code and input files used for developing MPs is housed internally on an accessible platform, so it is available to other users and not lost when developers move on to other tasks. The SC **NOTED** that ICES uses a Transparency and Assessment Framework (TAF) which is a useful frontend to direct users to the locations of relevant documents and code (e.g. Github repositories) that enable users to re-run assessments and other analyses, but that a much smaller system would be needed for the IOTC. The SC **NOTED** that most important information to be curated would be the input files, executables, and control files (not the large volume of output files), and **RECOMMENDED** that the Commission ensure that the IOTC Secretariat is provided with the necessary resources to manage the curation of this information.

RECOMMENDATION

That the TCMP:

- 1) **NOTE** paper IOTC–2024–TCMP07–05 which outlined the main outcomes of the 26th Session of the Scientific Committee, specifically related to the work of the TCMP.
- 2) **CONSIDER** how best to progress these issues at the present meeting.

APPENDICES

Appendix A: Program of Work (2024–2028) for the IOTC Working Party on Methods (WPM).

Appendix B: Schedule of Work for the Development of Management Procedures for Key Species in the IOTC Area

**APPENDIX A
WORKING PARTY ON METHODS PROGRAM OF WORK (2024-2028)**

Table 1. Priority topics for obtaining the information necessary to deliver the necessary advice to the Commission. Resolution 15/10 elements have been incorporated as required by the Commission.

Topic	Sub-topic and project	Timing				
		2024	2025	2026	2027	2028
1.	Continuation of Management Strategy Evaluation for Albacore, Skipjack, Yellowfin, Bigeye tunas as well as Swordfish					
	Peer review of BET MSE as per the ToRs endorsed by the SC					
Future Research Requirements (not in order of priority)						
	1.1 Albacore					
Management Strategy Evaluation	1.1.1 Revision of Operating Models based on WPM and SC feedback, including possible robustness tests					
	1.1.2 Implementation of simulation runs and presentation of results at the TCMP					
	1.1.3 Revision and evaluation of new set of Management Procedures after presentation of MP runs to TCMP and Commission (as needed)					
	1.1.5 External peer review					

1.2 Skipjack tuna					
1.2.1 Implementation of simulation runs and presentation of results at the TCMP					
1.2.2 Revision and evaluation of new set of Management Procedures after presentation of MP runs to TCMP and Commission (as needed)					
1.2.3 External peer review (2025-2026)					
1.3 Bigeye tuna					
1.3.1 Run MP using the catch and CPUE standardisation input data, consider exceptional circumstances, and provide the TAC advice					
1.3.2 External peer review					
1.3.3 Presentation of MP application and exceptional circumstances and resulting TAC to the TCMP and Commission meeting for adoption of the TAC					
1.3.4 Stock assessment to provide information on stock status					
1.4 Yellowfin tuna					
1.4.1 Update OM & present preliminary MP results to TCMP, WPTT/WPM review of new OM					
1.4.2 Present revised MP results to TCMP; iteratively update development if required)					
1.4.3 additional iterations if required					
1.5 Swordfish					

<p>1.5.1 Implementation of simulation runs and presentation of results at the TCMP</p> <p>1.5.2 Revision and evaluation of new set of Management Procedures after presentation of MP runs to TCMP and Commission (as needed)</p> <p>1.5.3 External Peer-review</p>					
<p>Multiple stock status derived from different model structures</p> <p>Develop specific guidance for the most appropriate models to be used or how to synthesize the results when multiple stock assessment models are presented: model selection and weighting. (see IOTC-2016-WPTT18-R, para.91)</p>					
<p>Stock status guidance and reference points.</p> <p>Review IOTC stock status characterization against reference points and the framework for the provision of management advice (Resolution 15/10) to address the TORs of ad hoc reference point WG.</p>					
<p>CKMR pilot project</p> <p>Implementation of a CKMR pilot project for Indian Ocean yellowfin tuna to evaluate the logistics and feasibility of sampling, and levels of cross contamination of DNA.</p>					
<p>Capacity Building</p> <p>Ongoing development of tools, materials and courses to continue Capacity Building for increasing participation in the MSE process and develop improved MSE communication to fishery managers.</p>					

APPENDIX B

SCHEDULE OF WORK FOR THE DEVELOPMENT OF MANAGEMENT PROCEDURES FOR KEY SPECIES IN THE IOTC AREA

Year	Albacore	Skipjack	Yellowfin	Bigeye	Swordfish
2023	<p>WPs/SC: Consider recommendations from the Commission and undertake MSE to provide advice on the performance of candidate MPs.</p>	<p>WPs/SC: Consider recommendations from the Commission, review and refine further MSE work if needed and provide advice on the performance of candidate MPs.</p>	<p>WPs/SC: Consider recommendations from the Commission and consider outcomes of the independent review of the Yellowfin assessment. Discuss and agree on a plan for further development of MSE and candidate MPs.</p>	<p>WPs/SC:</p>	<p>WPs/SC: Consider recommendations from the Commission, review and refine further MSE work if needed and provide advice on the performance of candidate MPs.</p>
2024	<p>TCMP: Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives.</p> <p>Commission: Consider work and advice from subsidiary bodies and provide direction to the WPs/SC on the need to undertake further MSE of candidate or alternative MPs.</p> <p>WPs/SC: Consider recommendations from the Commission and undertake MSE to provide advice on the performance of candidate MPs.</p>	<p>TCMP: Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives.</p> <p>Commission: Consider work and advice from subsidiary bodies. Decision and adoption of an MP.</p> <p>WPs/SC: Consider recommendations from the Commission</p>	<p>TCMP: Provide advice to Commission on elements of OMs and, if possible, candidate MPs, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives.</p> <p>Commission: Consider work and advice from subsidiary bodies and provide direction to the WPs/SC on the need to undertake further MSE.</p> <p>WPs/SC: Consider recommendations from the Commission and undertake MSE to provide advice on the performance of candidate MPs.</p>	<p>TCMP:</p> <p>Commission:</p> <p>WPs/SC: Consider outcomes of BET MSE review and provide advice to TCMP/Commission</p>	<p>TCMP: Provide advice to the Commission on elements of candidate MPs, and any proposed Resolutions for an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives.</p> <p>Commission: Consider work and advice from subsidiary bodies. Decision and adoption of an MP.</p> <p>WPs/SC: Consider recommendations from the Commission</p>
2025	<p>TCMP: Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for an MP, that require a decision by the Commission,</p>	<p>TCMP:</p>	<p>TCMP: Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for an MP, that require a decision by the Commission, including the</p>	<p>TCMP: Provide advice to Commission on the outcomes of the BET MSE review</p>	<p>TCMP:</p>

	<p>including the performance of candidate MPs against Commission objectives.</p> <p>Commission: Consider work and advice from subsidiary bodies. Decision and adoption of an MP.</p> <p>WPs/SC: Consider recommendations from the Commission</p>	<p>Commission:</p> <p>WPs/SC:</p>	<p>performance of candidate MPs against Commission objectives.</p> <p>Commission: Consider work and advice from subsidiary bodies and provide direction to the WPs/SC on the need to undertake further MSE of candidate or alternative MPs.</p> <p>WPs/SC: Consider recommendations from the Commission and undertake MSE to provide advice on the performance of candidate MPs.</p>	<p>Commission: Consider advice from subsidiary bodies on the outcomes of the BET MSE review and provide direction to WP/SC, if required.</p> <p>WPs/SC: Consider recommendations from the Commission (if any).</p>	<p>Commission:</p> <p>WPs/SC:</p>
2026	<p>TCMP:</p> <p>Commission:</p> <p>WPs/SC:</p>	<p>TCMP:</p> <p>Commission:</p> <p>WPs/SC:</p>	<p>TCMP: Provide advice to Commission on elements of candidate MPs, and any proposed Resolutions for an MP, that require a decision by the Commission, including the performance of candidate MPs against Commission objectives.</p> <p>Commission: Consider work and advice from subsidiary bodies. Decision and adoption of an MP.</p> <p>WPs/SC: Consider recommendations from the Commission</p>	<p>TCMP:</p> <p>Commission:</p> <p>WPs/SC:</p>	<p>TCMP:</p> <p>Commission:</p> <p>WPs/SC:</p>